

CLAIMS

1. An apparatus comprising:  
a circuit configured to generate a spread spectrum clock signal, wherein said circuit comprises a voltage controlled oscillator having an automatically controlled gain.
2. The apparatus according to claim 1, wherein said gain is nonlinear.
3. The apparatus according to claim 1, wherein said gain varies in response to a frequency of said spread spectrum clock signal.
4. The apparatus according to claim 2, wherein a function curve for said nonlinear gain is generated according to predetermined criteria.
5. The apparatus according to claim 4, wherein said function curve is a parabolic curve.

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✓ 6. The apparatus according to claim 4, wherein said function is a second degree or higher polynomial.

✓ 7. The apparatus according to claim 4, wherein a computer program is used to generate said function curve for said gain.

8. The apparatus according to claim 1, wherein said spread spectrum clock signal is generated in response to a reference signal having any frequency from 50 to 170 MHz.

9. The apparatus according to claim 1, wherein said circuit further comprises a single set of ROM codes.

) 10. The apparatus according to claim 9, wherein said ROM codes determine a frequency modulation profile for said spread spectrum clock signal.

) 11. The apparatus according to claim 10, wherein said circuit further comprises a divider circuit.

12. The apparatus according to claim 11, wherein said ROM codes control said divider circuit.

13. An apparatus comprising:

a voltage controlled oscillator (VCO) configured to generate an output signal in response to a control signal, wherein said VCO has a gain that is automatically controlled; and

a control circuit configured to generate said control signal in response to (i) a reference signal, (ii) said output signal, and (iii) a set of ROM codes.

14. A method for adapting a single spread spectrum ROM code to generate a spread spectrum clock signal over a wide continuous range of frequencies comprising the steps of:

(A) determining a nonlinear gain function for a voltage controlled oscillator (VCO) according to predetermined criteria; and

(B) adjusting a gain of said VCO according to said gain function in response to changes in frequency of an input signal.

15. The method according to claim 14, wherein step A comprises the sub-steps of:

- (A-1) selecting a target frequency for said VCO;
- (A-2) setting a gain value for said VCO;
- 5 (A-3) simulating a spread spectrum phase lock loop for a number of modulation cycles; and
- (A-4) calculating an accumulated error deviation from an ideal modulation profile.

16. The method according to claim 15, further comprising the sub-step of:

- (A-5) repeating steps A-2 through A-4 for a range of gains.

17. The method according to claim 16, further comprising the sub-step of:

- (A-6) repeating steps A-1 through A-5 for a range of frequencies.

18. A computer readable media comprising instructions for performing the sub-steps according to claim 15.

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19. A computer readable media comprising instructions  
for performing the sub-steps according to claim 16.

20. A computer readable media comprising instructions  
for performing the sub-steps according to claim 17.